

WHAT IS CLAIMED IS:

1. A tool for the fine-turning of grooves in workpieces, comprising:

5 a basic body including a rearwardly extending mounting part, and a forwardly projecting bracket, the bracket including a narrow neck part and an enlarged support part disposed at an end of the neck part, the support part forming an insert seat, the support part extending laterally from the neck part wherein the support part is arranged asymmetrically with respect to a center line of the basic body extending in a front-to-rear direction through the neck part and the mounting part; and

10 a cutting insert including a top side, a bottom side, and a peripheral clearance surface extending between the top and bottom sides, the bottom side being supported on the insert seat, the insert including two spaced-apart convexly arched side cutting edges arranged wherein the center line passes therebetween, a hole provided for receiving a fastening screw, the bottom side and the insert seat
15 including mutually engaging stabilizing structures preventing angular displacement of the insert about an axis of the hole.

2. The tool according to claim 1 wherein the bracket includes a length measured parallel to the axis of the hole, and the support part defines
20 a width measured in a direction perpendicular to the length and perpendicular to the center line, wherein the length is at least three times longer than the width.

3. The tool according to claim 2 wherein the insert has a thickness measured from the top side to the bottom side, the length of the bracket being at least five times greater than the thickness of the insert.

5 4. The tool according to claim 1 wherein the bracket includes a length measured parallel to the hole, and the insert has a thickness measured from the top side to the bottom side, wherein the length is at least five times greater than the thickness.

10 5. The tool according to claim 1 wherein the neck includes first and second planar opposite side surfaces oriented parallel to the axis of the hole, the first side surface transforming into the support part by an arched transition portion.

6. The tool according to claim 1 wherein the support part tapers from the insert seat in a rearward direction toward the mounting portion.

15 7. The tool according to claim 6 wherein a cross section of the support part becomes smaller in a downward direction away from the insert seat.

8. The tool according to claim 1 wherein a cooling fluid conduit extends through the basic body and exits at the support part for directing cooling fluid toward the insert.

20 9. The tool according to claim 1 wherein a portion of the bottom side of the insert disposed beneath the first cutting edge is flush with a side of the support part.

10. The tool according to claim 5 wherein an edge portion of the insert seat forms an obtuse angle with the side surface of the neck part as the insert seat is viewed in a direction parallel to an axis of the hole, the obtuse angle being at least 125° .

5 11. The tool according to claim 10 wherein the obtuse angle is at most 140° .

12. The tool according to claim 1 wherein the mounting portion has a polygon-shaped cross section.

10 13. The tool according to claim 1 wherein the stabilizing structures comprise projections and grooves receiving the projections.

15 14. The tool according to claim 13 wherein the recesses are formed in the bottom side of the insert and comprise grooves oriented perpendicular to one another in a cross-like configuration, the projections comprising ridges formed on the insert seat and arranged in complementary fashion to the grooves.

15 15. The tool according to claim 14 wherein one ridge extends perpendicular to the edge portion which forms the obtuse angle with the first side surface of the neck part.

16. A cutting insert comprising a top side, a bottom side and a peripheral clearance surface extending between the top and bottom sides, a hole extending from the top side to the bottom side for receiving a fastener, the top side having first and second spaced apart convexly arch-shaped cutting edges, the bottom side including stabilizing structure arranged for preventing angular displacement of the insert about an axis of the hole.

17. The insert according to claim 16 wherein the first and second cutting edges are spaced apart by a front edge and converge toward one another in a direction away from the front edge.

18. The insert according to claim 16 wherein each of the first and second cutting edges comprises a plurality of edge parts having different respective radii of curvature.

19. The insert according to claim 17 wherein the first and second cutting inserts converge rearwardly toward a rear edge of the insert, the rear edge being shorter than the front edge and extending parallel thereto.

20. The insert according to claim 18 wherein the insert is divided into first and second halves by a symmetry line disposed midway between the first and second cutting edges, wherein the first and second cutting edges are disposed on the first and second halves, respectively, a longest one of the edge parts on the first half having a center of curvature disposed in the second half, a longest one of the edge parts on the second half having a center of curvature disposed in the first half.

21. The insert according to claim 20 wherein an imaginary line perpendicular to the symmetry line divides the top surface into four quadrants, each longest edge part having its center of curvature situated on an opposite side of the symmetry line and on an opposite side of the imaginary line.

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22. The insert according to claim 17 wherein the front edge is linear and intersects the first and second cutting edges tangentially thereto.

23. The insert according to claim 21 wherein a radius of each of the longest edge parts is at least twice as large as the bending radii of any other edge part.

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24. The insert according to claim 16 wherein the stabilizing structure comprises grooves projecting from the bottom side and intersecting one another.

25. The insert according to claim 24 wherein the grooves are oriented perpendicular to one another.

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26. The insert according to claim 25 wherein one of the grooves extends midway between the first and second cutting edges.

27. The insert according to claim 26 wherein each of the grooves intersects a center axis of the hole.

28. The insert according to claim 16 wherein the top side is planar.
29. The insert according to claim 16 wherein the clearance surface extends at an acute angle to the top side.